

Meadowood Condominiums

COMPACTION GROUT, UNDERPINNING, CHEMICAL GROUT PROJECT

Project

15 single story two-unit condominium structures showed signs of various foundation and sinkhole related issues that needed to be addressed.

Challenge

- Numerous structures needed interior foundation repair work all while people still resided in these homes.



Solution

The engineer of record recommended a multi-faceted approach of compaction grout, underpinning, and chemical grout applications to repair the foundations of all the buildings.

Low mobility compaction grout was utilized to seal off the limestone surface, fill voids, and compact soils under the structure. Underpinning was utilized to bypass the problematic clayey and organic soils, lift the foundation, and close cracks in the masonry walls. Chemical grouting was utilized at the interior floor slab to lift the slab and encapsulate and densify the very loose to loose organic laden soils.

Chemical grout injection was performed that utilized three separate injection depths of 8, 5, and 3 feet below land surface (bls) with 15 pounds of material due to the presence of very loose to loose near-surface soils. A properly implemented compaction grout injection protocol adequately densified loose shallow soils. The soil column between the injected grout and foundation/slab was repeatedly compressed between the uplifting forces generated by the grout injection and the confining pressure of the foundation/slab.

Due to the deleterious soils encountered at the site, underpinning was utilized to bypass the problematic soils and stabilize and lift the load-bearing elements of the structure. An added benefit of the underpinning system is that the loose near surface soils will also be bypassed. The underpin system was installed to an average depth of 36 feet. Predrilling and the use of sleeves to a minimum of 20 feet bls were used to reduce skin friction effects within the zone of the shrink/swell clay activity.

Engineer: SEI

Market: Residential

Solution: Ground Improvement

Services: Compaction Grout, Underpinning, Chemical Grout

844-HELICON

HeliconUSA.com